ABSTRACT OF THE DISCLOSURE

Cryptosystem using public key with message much larger than the public key modulus by arranging message into a matrix and encrypting the determinant rather than every element followed by multiplication of the matrix by the encrypted determinant. Private key decryption of determinant of the encrypted matrix provides the inverse, and then multiplication by the encrypted matrix recovers message. Further, a preprocessing permutation of the message defined by a hash of the message or by random numbers helps maintain atomicity of the message.